

Pratt replied that he had seen specimens from California and there was no reason why other species should not exist on the coast further north. Dr. Hopkins stated that he had had some experience in West Virginia and Maine with these insects and they were exceedingly troublesome.

—Dr. Hopkins exhibited specimens of fossil mesquite wood from Texas Hill, Arizona, showing distinct fossilized borings, apparently of a Cerambycid larva; and some fragments of petrified wood from the same locality showing insect borings filled with perfectly preserved egg-like objects.

—Dr. Hopkins made a few remarks on the Scolytid larvæ and their mouth-parts. He stated that he had found very constant characters in the larva which greatly simplified the classification of several groups. A box of pinned larvæ was exhibited, and several plates of drawings were also shown. Dr. Gill asked if the larval hooks mentioned by Dr. Hopkins were co-ordinate with any character in the adult. Dr. Hopkins replied that so far as he could determine they were not.

—Mr. Banks presented the following paper:

#### NEW TRICHOPTERA FROM JAPAN.

BY NATHAN BANKS.

Some time ago Mr. S. I. Kuwana sent me a small collection of caddice-flies from Japan. I was at work on them when Mr. Nawa reached Washington bringing some more species. The following paper is based on these two collections. They contain 25 species, 9 of which have been described, 12 of which I describe herewith, and four are represented by females not sufficiently characteristic to be described. Two of the described species have only just been published by Dr. Ulmer, and I had them in manuscript. Three new genera are described, all in the Limnephilidæ. None of the species are European, but one was described from Eastern Siberia. Doubtless collections from the northern parts of Japan will show some European species.

Too few species are as yet known to make any generalizations regarding the trichopterous fauna of Japan. There are several remarkable genera present, most noteworthy is *Perisoneura* which has a series of costal cross veins. It may be also mentioned that the largest caddice-fly known is from Japan, *Holostomis regina*, a magnificent insect.

*Phryganea latipennis* n. sp.

Face pale brown, vertex with long yellowish hair in middle, brown on sides; antennæ pale, basal joint brown; palpi brown; thorax pale, with yellowish hair in a broad stripe through the middle, and brown on the sides; abdomen brown; legs pale yellowish, anterior and middle tibiæ brown, especially on outside; wings gray, with much black hair along basal part of costa; pterostigma black, containing a few white dots, and behind it in the base of the first apical cell is an elongate dark spot, also a smaller one near base of the third apical cell; the middle area of wing before the discal cell is very pale; the outer margin blackish, extending up on the veins; anal region pale; venation mostly pale; hind wings gray-hyaline, dark on costal area, blackish at the pterostigma, and clouded at tip. Both wings very hairy. Discal cell of fore-wings much shorter than pedicel, shorter than in *Ph. sordida*.

Expanse 30 mm.

One specimen from Gifu, Japan.

*Nemotaulius* n. gen.

In most respects similar to *Grammotaulius*, but in the hind wings the first apical sector is connected to the radius or runs into it near tip.

*Type: Gr. brevilinea* McLachlan.

In the specimen before me, which I consider the same as McLachlan's, the apical sector runs into the radius just before tip.

*Nothopsyche* n. gen.

Near to *Chilostigma*; differs therefrom in the longer palpi, the second joint of the maxillary palpi being longer than the third, in the slender labial palpi, and in the less strongly marked pterostigma. Spurs 1-2-2; discal cell very long, fifth apical cell acute at base in both pairs, and barely reaching the anastomosis, fourth in hind wings broad at base.

*Type: N. pallipes* Bks.

*Chilostigma ruficollis* Ulmer, recently described in the *Stettiner Zeitung* from Japan, also belongs to this genus. I have a specimen of it from Gifu.

*Nothopsyche pallipes* n. sp.

Face pale yellow, vertex blackish, with a median reddish line, and paler behind, with black bristles; palpi pale; antennæ pale, basal joint blackish, especially above; prothorax pale, with some black bristles above; rest of thorax rather reddish; abdomen pale on base, brown toward tip above, venter pale; legs pale yellowish, the tarsal joints darker at extreme tips, spines black, none above on tibia i. Fore-wings yellowish hyaline, minutely tuberculated, with appressed yellowish and scattered erect black hairs; the extreme outer margin faintly dusky, a hyaline mark at arculus; hind wings gray hyaline, barely darker towards tip. The

maxillary palpi are very long, the second joint plainly longer and thicker than the third; labial palpi short, slender (not as long as in *N. ruficolle*). Wings rather broad, broader than in *N. ruficolle*, venation similar to that species, but the discal cell is a little longer, and the radial sector a trifle more bent at the pterostigma.

Expanse 34 mm.

One specimen from Gifu, Japan.

*Moropsyche* n. gen.

A Limnephilid; maxillary palpi of male slender, second and third joints subequal; vertex elevated transversely in the middle, the black ocelli at sides of this elevation; basal joint of antennæ not very long; prothorax short; spurs 1-3-4; fore-wings rather narrow, subcosta running into costa, discal cell short, vein closing it weak, forks 1, 2, 3, and 5 present, fork 1 not reaching the discal cell, the pedicel about one-half the length of fork, fork 3 almost reaching the anastomosis, median sector arising just a little before the anastomosis, so that the arculus is as far out as anastomosis; in hind wings the discal cell is open, fork 1 very short, with long pedicel, forks 2 and 3 acute at base, latter not reaching the cross-vein.

*Type: M. parvula* Bks.

*Moropsyche parvula* n. sp.

Black, some yellow hairs on face, and near base of antennæ; legs pale, especially the tibiæ and tarsi, these with black spurs and black spines. Wings blackish, or fumose, sparsely black haired, and with much appressed yellow hair; antennæ distinctly crenulate within. Wings narrow, rather rounded at tips, venation rather fine.

Expanse 12 mm.

Two males from Hikosan, Buzen, Japan, 28 March.

*Brachycentrus vernalis* n. sp.

Head black, clothed with black hair; maxillary palpi with very long black hair, labial palpi with short hair; antennæ rather heavy, dark brown, first joint black, not elongate; thorax black, with black tufts on anterior lobes; abdomen black, with a few black hairs; legs black on coxæ and femora, paler beyond, especially on hind pair, which are clothed with short, whitish hairs; wings dull black, darker along costa and hind margin. Venation as usual in genus.

Expanse 22 mm.

Two specimens from Hikosan, Buzen, Japan, 28 March.

*Gæra japonica* n. sp.

Similar in size and general structure to *G. pilosa*, but paler yellow throughout; the swollen area in the front wings at end of the "area interclavialis" is not near as large as in *G. pilosa*; the fork of front wings

extends fully to middle of discal cell (on outer third in *G. pilosa*); fork 3 has a shorter pedicel than in that species. The comb on venter of male has five teeth each side, and the middle one is not much longer than the others; the male genitalia also differ.

Expanse 18 mm.

Two males from Kawana, Japan, 25 June.

*Crunæcia albicornis* n. sp.

Head black, with tufts of long black hair above eyes; antennæ black, on basal joint with long erect black hair all around, beyond this joint the antennæ are nearly white, the first few joints marked with black; palpi pale brown; thorax black, with some tufts of black hair in front; abdomen dark brown; legs pale brown, almost white on tarsi; wings blackish, with long black hairs, and short, yellowish appressed hairs, fringe blackish, with two or three white patches on outer part, hind wings blackish, with some short yellowish hair, fringe long, some white spaces in it between ends of veins. Structure, in general, similar to the other species; spurs 2-4-4; basal joint of antennæ very long and slender and densely clothed with long hair, no cilia on thread of antennæ; maxillary palpi small and slender. Wings with forks 1, 2, 3, 5; discal cell longer than the pedicel, but fork 1 extends only a little way on it, fork 3 reaches anastomosis, but not farther, the cross-vein connecting cubital and anal is before middle of discal cell; in both wings the cross-vein at base of the fourth apical cell is hyaline white.

Expanse 20 mm.

Two specimens from Hikosan, Buzen, Japan, 28 April.

*Perissoneura similis* n. sp.

Jet black; front and middle legs nearly white, hind pair darker; male with a large white spot in each wing beyond the anastomosis, elongate and bent outwards, the inner side distinct, but outer edge ragged and fading out, the one in fore wing has the inner side angulate, the one in hind wings has the upper part of inner side concave; female with wings entirely black, except faint small whitish spot in base of second and fourth apical cells, and on the thyridium, in the hind wing a small spot in base of fourth apical cell. Wings shaped about as figured for *P. paradoxa* McLach. or a trifle more elongate; the costal cross-veinlets are present, but the discal cell is longer, the apical cells rather shorter, the anastomosis more regular, and fork 4 is absent in both sexes.

Expanse, ♂, 46 mm., ♀, 50 mm.

Two males and one female, from Hikosan, Buzen, 29 May, and Tsuno, Buzen, Japan, 8 May.

*Perissoneura japonica* n. sp.

Similar in most respects to *P. similis*, it differs in shorter and more rounded wings, the white spots of male are broader, not so elongate,

placed a little nearer the tip, and with the outer margin as sharp and distinct as the inner edge, the inner side of the mark in both wings is slightly concave; the general color of the wing is more of a deep brown than a black, and is rather shining. The species is also smaller than *P. similis*. The genitalia show differences as figured.

Expanse, ♂, 38 mm., ♀, 44 mm.

One pair from Gifu, Japan.

This is probably the species figured by Dr. Ulmer as the male of *P. paradoxa*, which was described from a female. However, McLachlan says that fork 4 is present in forewings and so figures it, while in this and *P. similis* fork 4 is absent in both sexes. Dr. Ulmer says nothing about this matter. Moreover the anastomosis of *P. paradoxa*, as figured, is very much more irregular than in either of my species. Therefore, I believe that *P. paradoxa* is unknown to Dr. Ulmer and myself, and that there are at least three species of *Perissoneura* in Japan, if indeed my two species do not form another genus on account of the absence of fork 4.

*Odontocerum japonicum* n. sp.

Black; wings brown, anterior pair rather darker than hind pair, and darkest in the apical third; legs brown, tibiae and tarsi paler. Differs at once from the European *O. albicorne* in that the discal cell of fore wings is extremely long, fully five times as long as its pedicel, the first apical cell not reaching back on the discal cell more than one-fifth its length; the fifth apical cell has a pedicel rather longer than in *O. albicorne*, and the third apical cell is also acute at base, and short pedicellate. The antennae are barely dentate.

Expanse 34 mm.

Two specimens from Gifu, Japan.

*Molanna mæsta* n. sp.

Brown; wings dusky, with some black, and more yellowish appressed hair, blackish on apical margin, and extending somewhat up on the veins; hind wings paler, the costal area rather yellowish, fringe of anal region very long, gray, especially long on the basal lobe; legs yellowish, with yellowish spurs, and some fine black spines on underside of the tibiae and tarsi. In fore wings the median vein beyond the anastomosis has three branches; the first apical cell is swollen above near tip. Venation of hind wing of male as figured.

Expanse 27 mm.

One male from Gifu, Japan.

A black-winged female *Molanna*, also from Gifu, probably represents another species, as it is smaller.

*Arctopsyche japonica* n. sp.

Head black, a tuft of black hair between bases of antennæ, elsewhere mostly with yellowish hair, basal joint of antennæ brownish, beyond yellowish, and beyond basal third more brownish again; prothorax densely clothed with yellow hair, rest of thorax with but few hairs, except anterior lateral tufts; abdomen black; legs yellow, spurs and tarsi more brownish. Wings clear yellowish, outer and posterior margin black; a black streak from pterostigma extends along radius and subcosta toward, but not reaching, base, and an oblique band across wing from pterostigma, forked behind; just before posterior apical angle there is a large yellow spot; hind wings yellow, with outer margin black from the pterostigma to tip and along apical margin, and the posterior margin narrowly black, an oblique black band, not very heavy, from pterostigma across wing to near the middle. Venation very similar to *A. ladogensis*; an oblique costal cross-vein, a cross-vein from the short discal cell to the radius, all five apical forks present, no ocelli, spurs 2-4-4, no filament on sides of male abdomen, antennæ subserrate within, joints 2, 3, 4, of maxillary palpi subequal in length, 5 long and slender.

Expanse 22 mm.

Hikosan, Buzen, Japan, 28 April; also from Gifu.

*Philopotamus japonicus* n. sp.

Head black, with a few hairs; palpi brown; antennæ dull black; prothorax with some golden hair, rest of thorax and the abdomen dark brown or blackish; legs pale brown; wings brown, clothed with short, appressed black hair, and with about thirty or forty spots of golden yellow hair. Venation dark brown, hind wings fumose, forks 3 and 4 pedicellate, fork 3 with longer pedicel; otherwise venation as usual. The male appendages are two-jointed, but lack the extra appendage from the basal joint that is figured for the European species.

Expanse 16 mm.

Three specimens from Hikosan, Buzen, Japan, 28 March.

The other species in the collection from Japan are as follows:

*Holostomis regina* McLachlan—Gifu.

*Phryganea japonica* McLachlan—Gifu.

*Phryganea sordida* McLachlan—Gifu.

*Glyphotælius admorsus* McLachlan—Gifu.

*Nemotaulius brevilinea* McLachlan—Gifu.

*Limnephilus* sp. ♀—Gifu.

*Nothopsyche ruficollis* Ulmer—Gifu.

*Rhabdoceras japonica* Ulmer—Gifu.

*Rhyacophila* sp. ♀—Gifu.

*Glossosoma* sp. ♀—Gifu.

*Macronema radiatum* McLachlan—Gifu.

*Hydropsyche* sp. ♀—Gifu.

*Stenopsyche griseipennis* McLachlan—Akamura, Kawana, and Gifu.

Besides these there are described from Japan the following: *Phryganea melaleuca* McLachlan, *Perissoneura paradoxa*, McLachlan, and two species of *Rhyacophila*, by Morton.

#### EXPLANATION OF PLATE III.

- Fig. 1.—*Nothopsyche pallipes*, genitalia, ♂.  
 2.—*Arctopsyche japonica*, fore wing.  
 3.—*Moropsyche parvula*, genitalia, ♂.  
 4.—*Perissoneura similis*, ♀.  
 5.—*Molanna mæsta*, hind wing of male.  
 6.—*Molanna mæsta*, male genitalia.  
 7.—*Philopotamus japonicus*, genitalia, ♂.  
 8.—*Moropsyche parvula*, hind wing.  
 9.—*Gera japonica*, genitalia, male.  
 10.—*Nothopsyche pallipes*, maxillary palpi, male.  
 11.—*Crunæcia albicornis*, head of male.  
 12.—*Perissoneura japonica*, genitalia.  
 13.—*Brachycentrus vernalis*, genitalia, top view.  
 14.—*Brachycentrus vernalis*, genitalia, side.

Mr. Ashmead asked to what fauna the Japanese species were allied. Mr. Banks replied that there was too little known to venture any opinion. He stated that one species spreads over the Malayan region and another, a Macroneuron from E. Siberia, is not represented in Europe, but does occur in the tropical regions. Dr. Gill asked if the adult had ever been bred from the valvate case described by Isaac Lea as a shell. Mr. Banks stated that as far as he knew it had not been.

—Dr. Howard called attention to a recent report received by him relative to "blind mosquitoes" in Florida. He asked Messrs. Ashmead and Quaintance if they could throw any light on the subject. Mr. Ashmead stated that the insects were males having plumose antennæ and so far as he knew had not been identified. He had observed their assembling in houses.

Dr. Howard stated that the site of the house where the present meeting was being held was one of his collecting places years ago.

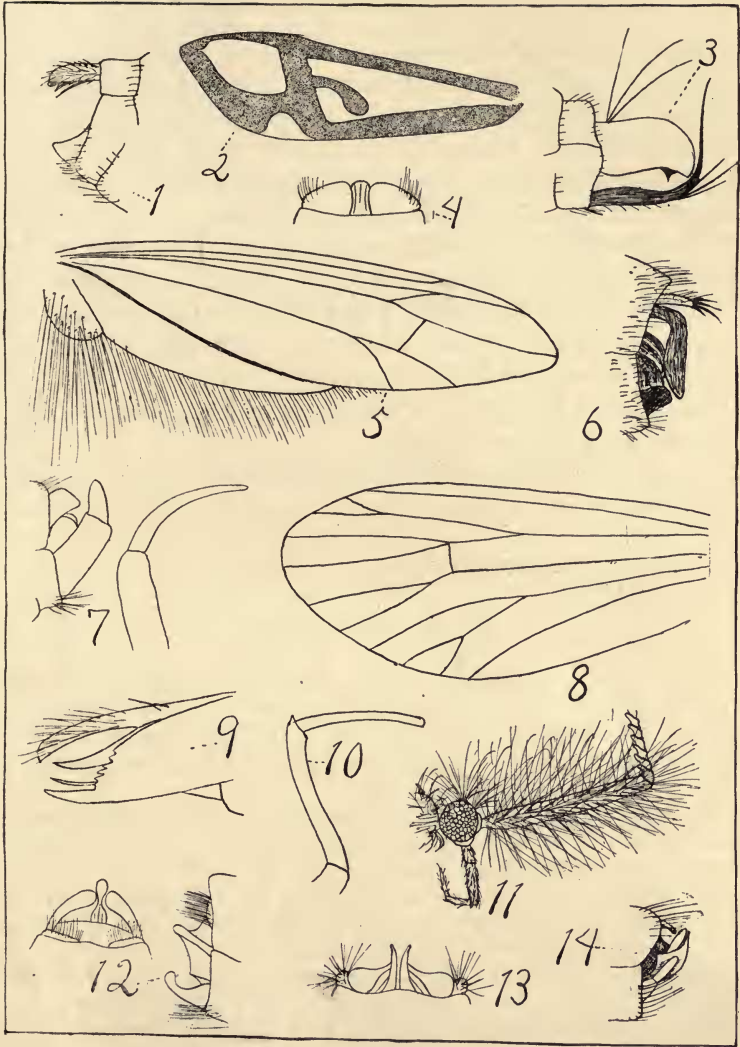


PLATE III.  
NEW TRICHOPTERA FROM JAPAN.